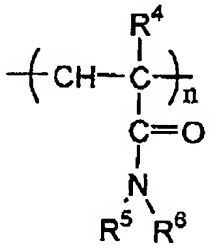
AMENDMENTS TO THE CLAIMS

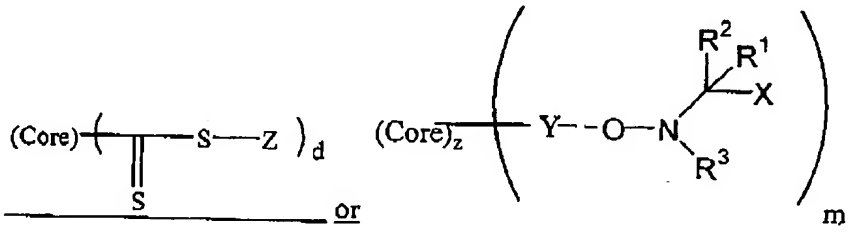
Please substitute the following pending claims 18-23 and 51-64 as replacement claims for the previously-pending claims. In this Amendment B, claims 18, 51 and 57-59 have been amended, claim 53 is withdrawn as directed to a non-elected species, and new claims 62-64 have been added.

Claims 1-17 are canceled.

18. (Currently amended) A non-linear polymer comprising repeat units having the formula:



where R^4 is H or an alkyl group; and R^5 and R^6, independently, are selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, heterocycloalkyl, substituted heterocycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxy, aryloxy, and combinations thereof; and n is 10 or more; and wherein the polymer includes at least a fragment of a material having the formula



wherein Core is a core molecule, S is sulfur, Z is selected from the group consisting of amino and alkoxy, each of R^1, R^2 and R^3 are the same or different straight chain, branched or cyclic substituted or unsubstituted alkyl groups, X is a moiety that is

capable of destabilizing a free radical, d is 2 or more, m ranges from about 2 to about 100, and z is 1 or more

~~wherein said polymer is soluble or dispersible in water or in aqueous medium, having a weight average molecular weight of at least about 75,000 and having a polydispersity index no greater than about 2.0, and wherein said polymer comprises essentially no linking or star center groups.~~

19. (original) A polymer according to claim 18 wherein said polymer consists essentially of said units.

20. (original) A polymer according to claim 18 wherein said polymer is a copolymer.

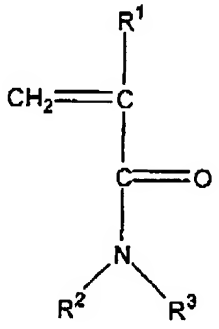
21. (original) A polymer according to claim 18 wherein said polymer is a block copolymer.

22. (original) A polymer according to claim 18 wherein said polymer is a random copolymer.

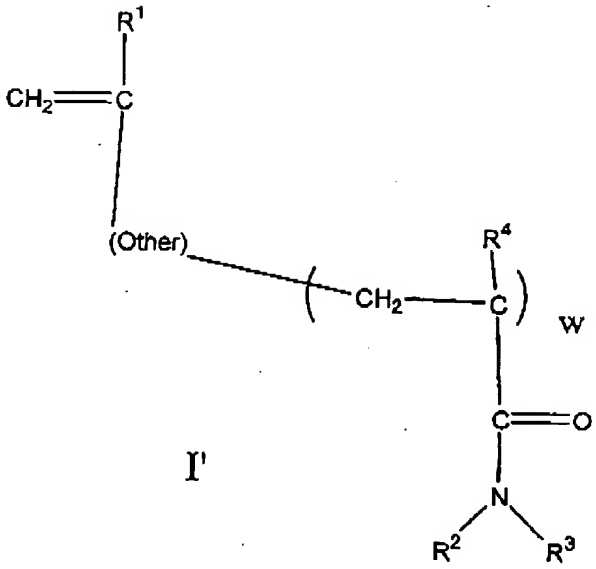
23. (original) A polymer according to claim 18 wherein said polymer has a star architecture, with a weight average molecular weight of greater that 75,000 daltons and an aqueous solution containing about 5 % w/v of said polymer has a viscosity of less than about 600 cps.

Claims 24-50 are canceled.

51. (currently amended) A polymer comprising repeat units derived from monomers having the formula I or I':



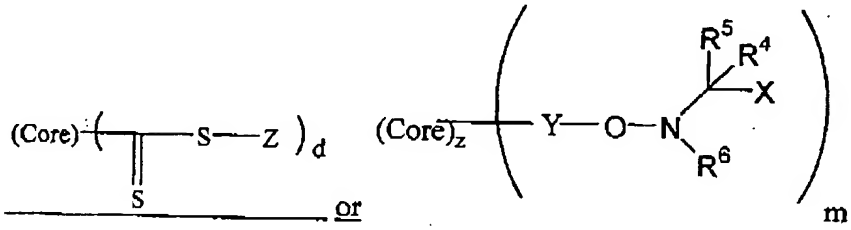
I



I'

where R^1 is selected from the group consisting of hydrogen or alkyl; and R^2 and R^3, independently, are selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, heteroalkyl, heterocycloalkyl, substituted heterocycloalkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, alkoxy, aryloxy, and combinations thereof; w is a number up to 1000; and Other is a linker and contains up to 20 non-hydrogen atoms; and

wherein the polymer includes at least a fragment of a material having the formula



or

wherein Core is a core molecule, S is sulfur, Z is selected from the group consisting of amino and alkoxy, each of R^4, R^5 and R^6 are the same or different straight chain, branched or cyclic substituted or unsubstituted alkyl groups, X is a moiety that is capable of destabilizing a free radical, d is 2 or more, m ranges from about 2 to about 100, and z is 1 or more

~~wherein said polymer is soluble or dispersible in water or in aqueous medium, having a weight average molecular weight of at least about 75,000 and having a polydispersity index that is in the range of about 1.0 to about 2.0.~~

52. (previously presented) The polymer of claim 51, wherein the polymer is a block copolymer.

53. (withdrawn) The polymer of claim 51, wherein the polymer is linear.

54. (previously presented) The polymer of claim 51, werein the polymer is a graft copolymer.

55. (previously presented) The polymer of claim 51, wherein the polydispersity index is not more than about 1.8.

56. (previously presented) The polymer of claim 51, wherein the polydispersity index is not more than about 1.5.

57. (currently amended) The polymer of claim 51, wherein the polymer has a weight average molecular weight of at least 300,000 ~~daltons~~.

58. (currently amended) The polymer of claim 51, wherein the polymer has a weight average molecular weight of at least 500,000 ~~daltons~~.

59. (currently amended) The polymer of claim 51, wherein the polymer has a weight average molecular weight of at least 1,000,000 ~~daltons~~.

60. (previously presented) The polymer of claim 51, wherein the polymer has a low critical solubility temperature of at least about 80°C.

61. (previously presented) The polymer of claim 51, wherein the polymer has a low critical solubility temperature of at least about 90°C.

62. (New) A polymer according to claim 18, wherein the polymer has a polydispersity index no greater than 2.0.

63. (New) A polymer according to claim 18, wherein said polymer is soluble or dispersible in water or in aqueous medium, and has a weight average molecular weight of at least about 75,000.

64. (New) A polymer according to claim 51, wherein said polymer is soluble or dispersible in water or in aqueous medium, and has a weight average molecular weight of at least about 75,000.